

LYONOTHAMNEAE, A NEW TRIBE IN THE ROSACEAE (ROSALES)

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ABSTRACT

Recent molecular phylogenetic analyses of Rosidae and Rosaceae, notably the Potter et al. (2007) paper, have led to changes in the circumscription and classification of Rosaceae. In the Potter et al. paper, *Lyonothamnus* was left outside any recognized tribe. It had been traditionally classified in Quillajaceae; *Quillaja* is now a member of Quillajaceae (Fabales). A monogeneric tribe, **Lyonothamneae**, is erected to house *Lyonothamnus*.

ABSTRACT

Recientes análisis filogenéticos moleculares de Rosidae y Rosaceae, principalmente el artículo de Potter et al. (2007) han producido cambios en la circunscripción y clasificación de Rosaceae. En el artículo de Potter et al., *Lyonothamnus* se dejó fuera de cualquier tribu reconocida. Había sido clasificado tradicionalmente en Quillajaceae; *Quillaja* es ahora uno de los miembros de Quillajaceae (Fabales). Se hace una tribu monogénica, **Lyonothamneae**, para albergar a *Lyonothamnus*.

Molecular phylogenetic analyses of the angiosperms and, more specifically, of Rosidae Takht. (summarized in Angiosperm Phylogeny Group 2003) and Rosaceae Juss. (e.g., Morgan et al. 1994) have substantially changed our perception of the relationships of Rosaceae, and have resulted in slight changes to its circumscription. Traditional Rosales Bercht. & J. Presl (e.g., Cronquist 1981) included families that are now dispersed in many orders and subclasses (Angiosperm Phylogeny Group 2003). Rosales now has a circumscription that includes members of the former Rhamnales Linnk and Urticales Juss. ex Bercht. & J. Presl (Angiosperm Phylogeny Group 2003). Similarly, phylogenetic analyses have led to a new classification of the Rosaceae (Potter et al. 2007), with a reorganization of subfamilies and, to a lesser extent, tribes. Hypotheses of relationships among tribes and subfamilies were also considerably modified as a result of this analysis. One may compare, for instance, the traditional classification used by Kalkman (2004) to that of Potter et al. (2007): the classic subfamilies Spiraeoideae Arn., Rosoideae Arn., Prunoideae Horan., and Maloideae Weber, recognized in the former, were reduced to three in the latter, Rosoideae, Dryadoideae Sweet, and Spiraeoideae. The last subfamily now incorporates genera formerly included in three subfamilies, including Prunoideae and Maloideae. In the phylogenetic analysis of Potter et al. (2007), *Lyonothamnus* A. Gray appeared at the base of Spiraeoideae, sister to all other members of the clade. In their classification, *Lyonothamnus* was not assigned to a tribe. Historically, *Lyonothamnus* has been considered part of tribe Quillajaceae Endl., along with *Quillaja* Molina. *Quillaja* is now treated as the only genus in Quillajaceae D. Don of the Fabales Bromhead (Angiosperm Phylogeny Group 2003). The subfamilial and tribal classification of Potter et al. (2007) is being used as the basis for treating Rosaceae in the Flora of North America project (volume 9, Rosales in part). Currently, no tribal name exists for *Lyonothamnus* (Pankhurst 2007; Reveal 2006). Therefore, I am proposing the creation of a tribe, Lyonothamneae, to accommodate *Lyonothamnus*.

Tribus **Lyonothamneae** Brouillet, tribus nov. TYPE: *Lyonothamnus* A. Gray, Proc. Amer. Acad. Arts 20:291. 1885.

Arbores inermes. Folia opposita, simplicia vel composita; stipulae caducae, liberae; venatio pinnata. *Flores* perigyni; epicalyx (1–)2–3-bracteolatus; hypanthium campanulatum; torus nullus; carpella 2(–3), distincta, libera, styli terminales, distincti; ovula 2–4 vel plura, fasciculata. *Fructus* folliculi aggregati, styli tarde cadentes. Numerus basicus chromosomatum $x = 9$.

Trees unarmed. **Leaves** opposite, simple or compound; stipules caducous, free; venation pinnate. **Flowers**

perigynous; epicalyx of (1–)2–3 bractlets; hypanthium campanulate; torus none; carpels 2(–3), distinct, free, styles terminal, distinct; ovules 2–4 or more, clustered. **Fruits** aggregated follicles (follicetum), styles tardily falling. $x = 9$.

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REFERENCES

- ANGIOSPERM PHYLOGENY GROUP. 2003. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG II. *Bot. J. Linn. Soc.* 141:399–436.
- CRONQUIST, A.J. 1981. An integrated system of classification of flowering plants. Columbia University Press, New York.
- KALKMAN, C. 2004. Rosaceae. In: K. Kubitzki, ed. Flowering plants. Dicotyledons: Celastrales, Oxalidales, Rosales, Cornales, Ericales. Vol. VI in K. Kubitzki, series ed., The families and genera of vascular plants. Berlin. Pp. 343–386.
- MORGAN D.R., D.E. SOLTIS, and K.R. ROBERTSON. 1994. Systematic and evolutionary implications of *rbcl* sequence variation in Rosaceae. *Amer. J. Bot.* 81:890–903.
- PANKHURST, R. 2007. *Lyonothamnus*. In: Rosaceae database. Provisional global plant checklist. International Organization for Plant Information (IOPI). [<http://bgbm3.bgbm.fu-berlin.de/iopi/gpc/PTaxonDetail.asp?NameCache=Lyonothamnus&PTRefFk=18> (accessed Oct. 2, 2007)].
- POTTER, D., T. ERIKSSON, R.C. EVANS, S.-H. OH, J.E.E. SMEDMARK, D.R. MORGAN, M. KERR, K.R. ROBERTSON, M. ARSENAULT, T.A. DICKINSON, and C.S. CAMPBELL. 2007. Phylogeny and classification of Rosaceae. *Pl. Syst. Evol.* 266:5–43.
- REVEAL, J.L. 2007. Rosaceae. In: *Indices nominum supragenericorum plantarum vascularium*. [<http://www.plant-systematics.org/reveal/pbio/fam/famRS.html> (accessed Dec. 11, 2007)].